

SEQ ID

NO. Residue Number

Gen Negative Bacteria

gamma purple

39 *Escherichia coli* (119) L R L L T P S Q F T R I G L T V A K K N V R R A H E

40 *Proteus mirabilis* (119) L R L L T P K H F N R I G L T I A K K N V K R A H E

41 *Branophilus influenzae* (136) L R L L T P I Q F K R L G L T V A K K H L K R A H E

42 *Pseudomonas putida* (133) K R L L T P R H F K R L G L V I G K K S V K L A V Q

43 *Budnera aphidicola* (114) S K L L K S T N F Q R L G L S I S R K N I K H A Y R

44 *Salmonella typhi* (119) L R L L T P A H F T R I G L T V A K K N V R R A H E

45 *Yersinia pestis* (119) L R L L T P S H F T R I G L T V A K K H V K R A H E

46 *Klebsiella pneumoniae* L R L L T P S H F T R I G L T V A K K N V K R A H E

47 *Salmonella paratyphi* I R L P A T S T - R I G L T V A K K N V R R A H E

48 *Vibrio cholerae* L R L L T P E H Y Q R L G L A V P K K Q I K T A V G

49 *Pseudomonas aeruginosa* K R L L T A R Q F S R L G L V I G K K N V K L A V Q

50 *Shewanella putrefaciens* L R L L T P A Q F K R L G L T V A K R Y V K R A N Q

alpha purple

51 *Oxidiella turnetii* (121) W R I R T T A E F R R L G V V A S K R N V R K A V W

52 *Rickettsia prowazekii* (121) T S L K N Q K E E E R L G I K V S R K L N K K A V V

53 *Caulobacter crescentus* E R L R K R P D F L R V G F T A T K K - I G G A V E

epsilon purple

54 *Helicobacter pylori* 26695 (161) D S L K N K S E F D K L G L S V S K K - V G N A V K

55 *Helicobacter pylori* J99 (161) D S L K N K S E F D K L G L S V S K K - V G N A V K

56 *Campylobacter jejuni* D K F S T N E E F S K I A V V A S K K - V G K A V V

beta purple

57 *Neisseria gonorrhoeae* Y R L L K T D D F S R I G L V V G K K T A K R A N E

58 *Neisseria meningitidis* Y R L L K T D D F S R I G L V V G K K T A K R A N E

59 *Bordetella pertussis* A R L H R P S E F A R L G L V I A K R F A A R A V T

60 *Thiobacillus ferrooxidans* D R L R Q K V A I Q R L G L A V S R K - V G N A V T

Gen Positive Bacteria

high G & C

61 *Streptomyces bikiniensis* (123) N R L R R R E D F A R A G F V V S K A - V G G A V V

62 *Streptomyces coelicolor* (123) N R L R R R E D F A R A G F V V S K A - V G V A V V

63 *Micromonospora lutea* (132) R R V R T P A E F R R A G F V V S K A - V G N A V T

64 *Mycobacterium tuberculosis* (125) N R M R R S A D F E R V G L I I A K S - V G S A V E

65 *Mycobacterium leprae* (120) N R M R R S S E F D H V G L I I A K T - V G S A V E

66 *Mycobacterium bovis* (115) N R M R R S A D F E R V G L I I A K S - V G S A V E

67 *Mycobacterium avium* N R M T R S T E F D R V G L V V G K A - V G T A V Q

68 *Corynebacterium diphtheriae* H K L S N S E Q F R R F G L V V S K - A V G N A V T

low G & C

73 *Bacillus subtilis* (119) N R L K K N E D F Q R V G L S V S K K - I G N A V M

74 *Bacillus halodurans* (118) H R I K R S D E F S R V L S V S K K - I G N A V T

75 *Bacillus anthracis* H R I K K N D E F Q R I G L S V S K K - I G N A V V

76 *Mycoplasma capricolum* (102) R V I K K N F E F Q K Y G I S V G K K - I G N A V I

77 *Mycoplasma pneumoniae* (118) H H L R D R K V F A R A A V S I S K T K Y K L A V E

78 *Mycoplasma genitalium* (128) H S L R E R K V F T R V A I S I A K T K Y K L A V Q

79 *Streptococcus pyogenes* - V K R E K D F Q R V G I S V G K K - I G N A V T

80 *Streptococcus mutans* Y R V K S D K D F Q R V G L S V G K R - L G N A V T

81 *Streptococcus pneumoniae* F R V K R E K D F Q R V G L S V S K K - L G N A V V

82 *Staphylococcus aureus* NCIC Y R I K K N A D F Q R L G I S V S K K - L G N A V L

83 *Staphylococcus aureus* COL Y R I K K N A D F Q R L G I S V S K K - L G N A V L

84 *Clostridium difficile* K G L K K D S D E R R V G I S V S K K - V G K A I T

Cyanobacteria

85 *Synechocystis* PCC6803 (124) L R L K H W Q D F Q R F G I T V S Q K V S K K T V

86 *Pseudanabaena* PCC6903 (116) N R L R R R E D F A R I G I V V S K K V S K L A V T

Spinochaete

87 *Borrelia burgdorferi* (119) I S L K S K I E I Q R I L V T F S K G - F R G S V K

88 *Treponema pallidum* (133) E R L R G S C R V R R F L A T F R R G - Y G K A V A

Chlamydiae

89 *Chlamydia trachomatis* (120) A R L L K R K Q F V K V G I T V S K K - F G K A H Q

90 *Chlamydia trachomatis* MoPn A R L L K R K Q F V K V G V T V S K K - F G K A H Q

91 *Chlamydia pneumoniae* (139) S R V L K R K Q F L R M G I T V S K K - F G K A H E

Thermotoga

69 *Thermotoga maritima* (117) E R L R L R R D F L R L G I V V K R K - F G K A T R

Bacteroides

70 *Rorphyronas girgivalis* E R L Y L R D E I N S M L V S V A K K R F R R A V K

Deinococci

71 *Deinococcus radiodurans* - - L R G E R E F R R I G L V V S K K T L K H A V K

Green-Sulfur

72 *Chlorobium tepidum* A R L K G G - - F L R V L F T V G K K L V P R A V D

% Identity

79 70 89 83 85 72 89 70 98 70

Seq ID NO.	Residue Number <sup>d</sup>	62	63	64	65	66	67	68	69	70	71	- 80 -	- 84 -	- 85 -	- 86 -	87	- 101	102	103	104	----	105										
<b>Gram Negative Bacteria</b>																																
gamma purple																																
39	<i>Escherichia coli</i> (119)	R	N	R	I	K	R	L	T	R	E	-	L	-	D	-	F	-	V	V	-	L	S	E	A	----	L					
40	<i>Proteus mirabilis</i> (119)	R	N	R	I	K	R	L	A	R	E	-	L	-	D	-	F	-	V	V	-	L	T	E	V	----	L					
41	<i>Baemophilus influenzae</i> (136)	R	N	R	I	K	R	L	V	R	E	-	L	-	D	-	F	-	V	F	-	F	A	Q	I	----	L					
42	<i>Pseudomonas putida</i> (133)	R	N	R	L	K	R	L	M	R	D	-	L	-	D	-	I	-	V	I	-	L	H	Q	H	----	F					
43	<i>Buchnera aphidicola</i> (114)	R	N	K	I	K	R	L	I	R	E	-	L	-	D	-	F	-	V	V	-	I	V	N	I	----	L					
44	<i>Salmonella typhi</i> (119)	R	X	R	I	K	R	L	T	R	E	-	L	-	D	-	F	-	V	V	-	L	S	E	A	----	L					
45	<i>Yersinia pestis</i> (119)	R	N	R	I	K	R	L	T	R	E	-	L	-	D	-	F	-	V	V	-	L	T	E	A	----	L					
46	<i>Klebsiella pneumoniae</i>	R	N	R	I	K	R	L	T	R	E	-	L	-	D	-	F	-	V	V	-	L	S	E	A	----	L					
47	<i>Salmonella paratyphi</i>	R	N	R	I	K	R	L	T	R	E	-	L	-	D	-	F	-	V	V	-	L	S	E	A	----	L					
48	<i>Vibrio cholerae</i>	R	N	R	F	K	R	I	C	R	E	-	L	-	D	-	F	-	V	V	-	L	F	N	L	----	L					
49	<i>Pseudomonas aeruginosa</i>	R	N	R	L	K	R	L	I	R	E	-	L	-	D	-	I	-	V	V	-	L	H	Q	Q	----	F					
50	<i>Shewanella putrefaciens</i>	R	N	R	I	K	R	V	I	R	D	-	I	-	D	-	I	-	V	V	-	L	N	K	L	----	I					
alpha purple																																
51	<i>Coxiella burnetii</i> (121)	R	N	R	V	R	R	V	V	K	E	-	L	-	D	-	I	-	V	V	-	L	Y	E	C	----	I					
52	<i>Rickettsia prowazekii</i> (121)	R	N	K	I	K	R	R	I	R	H	-	S	N	A	-	I	-	I	I	-	L	Q	Y	E	----	L					
53	<i>Caulobacter crescentus</i>	R	N	R	A	K	R	R	L	R	E	-	P	L	H	-	D	-	Y	-	V	F	-	L	L	D	D	V	K	T	A	L
epsilon purple																																
54	<i>Helicobacter pylori</i> 26695 (161)	R	N	L	I	K	R	R	L	R	S	-	C	Q	-	A	-	L	-	V	F	-	L	E	K	H	F	L	E	M	L	
55	<i>Helicobacter pylori</i> J99 (161)	R	N	L	I	K	R	R	L	R	S	-	C	Q	-	A	-	L	-	V	F	-	L	E	K	H	F	L	E	M	L	
56	<i>Campylobacter jejuni</i>	R	N	R	S	K	R	I	L	R	A	-	L	Q	-	K	-	Y	-	I	F	-	L	E	K	N	L	K	W	G	L	
beta purple																																
57	<i>Neisseria gonorrhoeae</i>	R	N	Y	M	K	R	V	I	R	D	-	L	-	D	-	F	-	V	V	-	A	R	A	E	----	L					
58	<i>Neisseria meningitidis</i>	R	N	Y	M	K	R	V	I	R	D	-	L	-	D	-	F	-	V	V	-	A	R	A	E	----	L					
59	<i>Bordetella pertussis</i>	R	N	T	L	K	R	V	I	R	E	-	L	-	D	-	Y	-	V	V	-	L	K	R	S	A	R	A	E	V		
60	<i>Thiobacillus ferrooxidans</i>	R	N	R	I	K	R	R	L	R	E	-	T	-	D	-	V	-	L	V	-	M	G	A	Y	----	L					
<b>Gram Positive Bacteria</b>																																
high G & C																																
61	<i>Streptomyces bikiniensis</i> (123)	R	N	Q	V	K	R	R	L	R	H	-	L	P	-	L	-	V	-	V	V	-	L	A	R	D	----	L				
62	<i>Streptomyces coelicolor</i> (123)	R	N	K	V	K	R	R	L	R	H	-	L	P	-	L	-	V	-	V	V	-	L	A	R	D	----	L				
63	<i>Micrococcus luteus</i> (132)	R	N	R	V	K	R	R	L	R	A	-	L	P	-	V	L	-	Q	V	-	L	R	R	E	T	V	G	A	L		
64	<i>Mycobacterium tuberculosis</i> (125)	R	H	R	V	A	R	R	L	R	H	-	L	H	-	D	H	V	-	V	I	-	L	E	Q	Q	----	L				
65	<i>Mycobacterium leprae</i> (120)	R	H	R	V	A	R	R	L	R	H	-	L	G	-	D	Q	V	-	V	I	-	L	A	Q	Q	----	L				
66	<i>Mycobacterium bovis</i> (115)	R	H	R	V	A	R	R	L	R	H	-	L	H	-	D	H	V	-	V	I	-	L	E	Q	Q	----	L				
67	<i>Mycobacterium avium</i>	R	H	R	V	A	R	R	L	R	H	-	L	E	-	D	R	L	-	V	I	-	L	A	Q	E	----	L				
68	<i>Corynebacterium diphtheriae</i>	R	H	R	V	S	R	Q	L	R	H	-	F	-	H	-	-	-	-	V	V	-	L	R	A	D	V	Q	A	A	L	
low G & C																																
73	<i>Bacillus subtilis</i> (119)	R	N	R	I	K	R	L	I	R	Q	-	L	K	-	D	-	Y	-	I	I	-	T	K	K	S	----	L				
74	<i>Bacillus halodurans</i> (118)	R	N	R	V	K	R	L	I	R	T	-	I	S	-	D	-	Y	-	V	I	-	V	K	G	S	----	L				
75	<i>Bacillus anthracis</i>	R	N	R	I	K	R	M	I	R	Q	-	I	D	-	D	-	F	-	V	I	-	L	K	K	S	----	L				
76	<i>Mycoplasma capricolum</i> (102)	R	N	K	V	K	R	Q	I	R	M	-	I	G	-	D	-	I	-	I	I	-	L	S	K	L	----	L				
77	<i>Mycoplasma pneumoniae</i> (118)	R	N	L	I	R	R	Q	V	K	A	-	L	N	-	D	-	V	-	L	V	-	K	Q	T	I	----	F				
78	<i>Mycoplasma genitalium</i> (128)	R	N	L	I	K	R	Q	I	R	S	-	L	E	-	D	-	I	-	L	V	-	K	Q	K	L	----	F				
79	<i>Streptococcus pyogenes</i>	R	N	A	V	K	R	K	I	R	H	-	L	K	-	D	-	F	-	V	V	-	L	Q	Q	N	----	L				
80	<i>Streptococcus mutans</i>	R	N	A	I	K	R	K	L	R	H	-	L	G	-	D	-	F	-	V	V	-	M	K	K	N	----	L				
81	<i>Streptococcus pneumoniae</i>	R	N	Q	I	K	R	R	I	R	H	-	L	V	-	D	-	F	-	V	V	-	M	E	K	N	----	L				
82	<i>Staphylococcus aureus</i> NCTC	R	N	K	I	K	R	A	I	R	E	-	I	L	-	D	-	I	-	I	V	-	I	Q	N	S	----	L				
83	<i>Staphylococcus aureus</i> COL	R	N	K	I	K	R	A	I	R	E	-	I	L	-	D	-	I	-	I	V	-	I	Q	N	S	----	L				
84	<i>Clostridium difficile</i>	R	N	R	V	R	R	L	I	K	E	-	K	I	K	-	D	-	I	-	V	F	-	I	K	N	----	L				
<b>Gramobacteria</b>																																
85	<i>Synechocystis</i> FOC6803 (124)	R	N	R	L	K	R	Q	I	R	A	-	I	K	-	D	-	V	-	V	I	-	F	L	R	E	----	L				
86	<i>Pseudorhabena</i> FOC6903 (116)	R	N	R	F	K	R	Q	L	R	A	-	L	K	-	Q	-	I	-	V	V	-	L	G	D	D	----	L				
<b>Spirochaete</b>																																
87	<i>Borrelia burgdorferi</i> (119)	R	N	R	I	R	R	L	F	K	E	-	L	E	-	D	-	I	-	I	F	-	I	E	S	L	----	M				
88	<i>Treponema pallidum</i> (133)	R	N	R	A	R	R	L	S	K	E	-	L	V	-	D	-	L	-	V	L	-	L	L	C	V	----	L				
<b>Chlamydiae</b>																																
89	<i>Chlamydia trachomatis</i> (120)	R	N	R	F	K	R	I	V	R	E	-	L	-	Q	-	V	-	V	I	-	L	S	E	E	L	L	Q	R	I		
90	<i>Chlamydia trachomatis</i> MoPn	R	N	R	F	K	R	I	V	R	E	-	L	-	Q	-	V	-	V	V	-	L	S	A	D	L	L	K	H	I		
91	<i>Chlamydia pneumoniae</i> (139)	R	N	S	F	K	R	V	V	R	E	-	L	-	Q	-	I	-	V	V	-	L	L	Q	D	F	I	N	Q	I		
<b>Thermotoga</b>																																
69	<i>Thermotoga maritima</i> (117)	R	N	K	L	K	R	W	V	R	E	-	I	-	D	-	I	-	V	V	-	V	R	E	K	----	L					
<b>Bacteroides</b>																																
70	<i>Porphyromonas gingivalis</i>	R	N	R	V	K	R	L	V	R	E	-	L	-	D	-	-	-	V	L	-	L	P	D	F	R	T	V	E	R		
<b>Deinococci</b>																																
71	<i>Deinococcus radiodurans</i>	R	N	R	A	R	R	R	V	R	E	-	L	L	-	R	-	A	-	I	L	-	L	A	Q	A	L	Q	R	G	A	
<b>Green-Sulfur</b>																																
72	<i>Chlorobium tepidum</i>	R	N	R	I	K	R	L	M	R	E	-	L	T	-	D	H	Q	-	V	-	L	E	R	F	R	A	I	R	H		
% Identity																																
		100	89			79	100			91		74		75		77						68									74	